

Claim:

I, we claim:

1. A method of soil remediation to reduce the concentration level of a contaminant organic compound in soil to a target concentration level, comprising the steps of:

- a) churning the soil with a soil mixing device;
- b) injecting hot air into the soil as it is being churned to thermally strip off organic compounds, including natural and benign organic compounds; and
- c) if the contaminant organic compound concentration level following the preceding step is above the target level, introducing a chemical oxidizing agent into the soil in an amount that is effective over reasonable time to reduce the concentration level to or below the target level.

2. A method as in claim 1, wherein the chemical oxidizing agent is a permanganate.

3. A method as in claim 1, wherein the step of injecting hot air into the soil as it is being churned to thermally strip organic compounds is continued until such thermal stripping is no longer practically effective in further reducing the contaminant concentration level.

4. A method as in claim 3, wherein the chemical oxidizing agent is a permanganate.

5. A method as in claim 1, comprising the additional step of preheating the soil with a ground heater system prior to introducing the chemical oxidizing agent.

6. A method as in claim 1, comprising the additional step of covering the soil with thermal insulation after introducing the chemical oxidizing agent.

7. A method of in situ soil remediation to reduce the concentration level of a contaminant organic compound in soil to a target concentration level, comprising the steps of:

- a) comminuting the contaminated soil in situ with a trenching tool;
- b) injecting hot air into the contaminated soil in the proximity of the trenching tool while the soil is being comminuted by the trenching tool to thermally strip off organic compounds, including natural and benign organic compounds; and

- c) if the organic contaminant concentration level following the preceding step is above the target level, introducing a chemical oxidizing agent into the soil in an amount that is effective over reasonable time to reduce the concentration level to or below the target level.

8. A method as in claim 7, wherein the chemical oxidizing agent is a permanganate.

9. A method as in claim 7, wherein the step of injecting hot air is continued until thermal stripping is no longer practically effective in further reducing the concentration level.

10. A method as in claim 7, wherein the step of injecting hot air is continued until the contaminant concentration level is reduced by more than fifty percent.

11. A method as in claim 7, comprising the additional step of preheating the soil with a ground heater system prior to introducing the chemical oxidizing agent.

12. A method as in claim 7, comprising the additional step of covering the soil with thermal insulation after introducing the chemical oxidizing agent.